

IN THE CLAIMS

Please amend the claims as follows:

Claim 1 (Currently Amended): A communication apparatus for sending and receiving data by electromagnetic waves, comprising:

electromagnetic wave generating means for forming a radio frequency (RF) field by generating electromagnetic waves;

modulating means for sending data at one of a plurality of transmission rates by modulating electromagnetic waves; and

demodulating means for demodulating electromagnetic waves so as to acquire data sent from other apparatus at one of the plurality of transmission rates; and

a detector configured to detect a radio frequency field within a first time period before the communication apparatus initiates a communication with other communication apparatus and within a second time period before the communication apparatus responds to a request of said other communication apparatus.

the first time period is defined by $T_{IDT} + nxT_{RFW}$, where T_{IDT} is a first initial delay time, n is a first random number, and T_{RFW} is a first radio frequency waiting time, and said communication apparatus generates a first radio frequency when the radio frequency field is not detected by the detector within the first time period,

the second time period is defined by $T_{ADT}+n'xT_{RFW}$, where T_{ADT} is a second active delay time, n' is a second random number, and T_{IDT} is larger than T_{ADT} , and said communication apparatus generates a second radio frequency when the radio frequency field is not detected by the detector within the second time period,

wherein data for requesting an identification (ID) to identify the other apparatus is sent,

the ID sent from the other apparatus in reply to the request for the ID is acquired, and
the ID sent from the other apparatus includes a random number generated in the other
apparatus;

data that includes the ID of the other apparatus is sent as the data for the other
apparatuses after acquiring the ID of the other apparatus, and

data for requesting the ID is sent again if the ID of the other apparatus has not been
properly acquired.

Claim 2 (Original): The communication apparatus according to Claim 1, wherein the
data for requesting IDs is sent again if the IDs are simultaneously received from a plurality of
other apparatuses or if any overlapping IDs are received from the plurality of other
apparatuses.

Claim 3 (Currently Amended): A communication method for a communication
apparatus for sending and receiving data by electromagnetic waves, comprising:

~~an electromagnetic wave generating step for generating electromagnetic waves to~~
form a radio frequency (RF) field;

~~a modulating step for modulating electromagnetic waves to send data at one of a~~
plurality of transmission rates; [[and]]

~~a demodulating step for demodulating electromagnetic waves to acquire data~~
transmitted from other apparatus at one of the plurality of transmission rates; ;

detecting a radio frequency field within a first time period before the communication
apparatus initiates a communication with other communication apparatus and within a second
time period before the communication apparatus responds to a request of said other
communication apparatus, wherein

the first time period is defined by $T_{IDT} + nxT_{RFW}$, where T_{IDT} is a first initial delay time, n is a first random number, and T_{RFW} is a first radio frequency waiting time, and said communication apparatus generates a first radio frequency when the radio frequency field is not detected by the detector within the first time period, and

the second time period is defined by $T_{ADT}+n'xT_{RFW}$, where T_{ADT} is a second active delay time, n' is a second random number, and T_{IDT} is larger than T_{ADT} , and said communication apparatus generates a second radio frequency when the radio frequency field is not detected by the detector within the second time period;

sending wherein data for requesting identification (ID) to identify the other apparatus is sent; and

acquiring the ID sent from the other apparatus in reply to the request for the ID is acquired, wherein the ID sent from the other apparatus includes a random number generated in the other apparatus;

sending data that includes the ID of the other apparatus is sent as the data for the other apparatus after acquiring the ID of the other apparatus[[,]]; and

sending data for requesting the ID is sent again if the ID of the other apparatus has not been properly acquired.

Claim 4 (Currently Amended): A communication apparatus for sending and receiving data by electromagnetic waves, comprising:

modulating means for modulating electromagnetic waves to send data at any one of a plurality of transmission rates; [[and]]

demodulating means for demodulating electromagnetic waves to acquire data sent from other apparatus at any one of the plurality of transmission rates; and

a detector configured to detect a radio frequency field within a time period before the communication apparatus responds to a request of said other apparatus, wherein the time period is defined by $T_{ADT} + n' \times T_{RFW}$, where T_{ADT} is an initial delay time, n' is a random number, and T_{RFW} is a radio frequency waiting time;

said communication apparatus is configured to send, when an active communication mode is initiated, a response to said other apparatus by emitting an electromagnetic wave that prevents the other apparatus from starting an emission of electromagnetic waves to a plurality of target devices at the same time;

said communication apparatus is configured to send, when a passive communication mode is initiated, a response from the communication apparatus to said other apparatus at a timing determined by a random number, the response including an identification (ID) to identify said communication apparatus,

wherein, when data for requesting the ID for identifying itself is received from the other apparatus, its ID is generated using a random number and the generated ID is sent,

when data for requesting the ID is received again from the other apparatus, its ID is generated again by using a random number and the re-generated ID is sent again, and

data that includes the ID of itself among the data sent from the other apparatus is received as the data for itself.

Claim 5 (Original): The communication apparatus according to Claim 4, further comprising electromagnetic wave generating means for forming an RF field by generating electromagnetic waves,

wherein the modulating means sends data by modulating the electromagnetic waves output from the electromagnetic wave generating means.

Claim 6 (Original): The communication apparatus according to Claim 4, wherein the modulating means sends data by load-modulating the electromagnetic waves generated by the other apparatus.

Claim 7 (Currently Amended): A communication method for a communication apparatus for sending and receiving data by electromagnetic waves, comprising:

~~a modulating step for~~ modulating electromagnetic waves to send data at one of a plurality of transmission rates; [[and]]

~~a demodulating step for~~ demodulating electromagnetic waves to acquire data sent from other apparatus at one of the plurality of transmission rates;

detecting a radio frequency field within a time period before the communication apparatus responds to a request of said other communication apparatus, wherein the time period is defined by $T_{ADT} + n' \times T_{RFW}$, where T_{ADT} is an initial delay time, n' is a random number, and T_{RFW} is a radio frequency waiting time;

sending, when an active communication mode is initiated, a response to said other communication apparatus by emitting an electromagnetic wave that prevents the other communication apparatus from starting an emission of electromagnetic waves to a plurality of target devices at the same time;

sending, when a passive communication mode is initiated, a response from the communication apparatus to said other communication apparatus at a timing determined by a random number, the response including an identification (ID) to identify said communication apparatus;

wherein, when receiving data for requesting the ID for identifying itself is received from the other apparatus, its ID is generated and generating the ID by using a random number and transmitting the generated ID is transmitted,

when data for requesting ID is received again from the other apparatus, its ID is re-generated by using a random number and the re-generated ID is transmitted again, and data that includes its ID among the data sent from the other apparatus is received as the data for itself.

Claim 8 (New): A method of performing near-field communication between an initiator device and a target device, wherein the initiator device sends a command to the target device for starting the communication with a first electromagnetic wave modulated by data, the method comprising:

detecting at the initiator device a presence of a radio frequency field;
emitting the first electromagnetic wave from the initiator device to the target device, the first electromagnetic wave being configured to carry a request, when a radio frequency field is not detected within a time period defined by $T_{IDT} + n \times T_{RFW}$, where T_{IDT} is an initial delay time, n is a random number, and T_{RFW} is a radio frequency waiting time;

initiating communication with the target device selectively in one of an active mode and a passive mode of communication, wherein

(1) when the active communication mode is initiated, there are a plurality of target devices which receive the command and the radio frequency field is not detected in the detecting step within a time period defined by $T_{ADT} + n' \times T_{RFW}$, where T_{ADT} is an active delay time, n' is a random number, and $T_{IDT} > T_{ADT}$, the initiator device detects a response from the target device through a second electromagnetic wave emitted by the target device to avoid starting the emission of electromagnetic wave by different target devices at the same time, and

(2) when the passive communication mode is initiated and there are a plurality of target devices which receive the command, the initiator device detects a response from the

target device including an identification (ID) determined by a random number generated in the target device; and

resending the command to the target device when a collision of responses from a plurality of target devices occurs.

Claim 9 (New): A method of performing near-field communication between an initiator device and a target device, wherein the initiator device is capable of initiating communication with the target device selectively in one of an active mode and a passive mode of communication and the target device responds to a command from the initiator device for starting communication with a first electromagnetic wave modulated by data, the method comprising:

(1) when the active communication mode is initiated and there are a plurality of target devices which receive the command:

detecting at the target device a presence of a radio frequency field, when the radio frequency yield is not detected in said detecting step within a time period defined by $T_{ADT} + n'T_{RFW}$, where T_{ADT} is an active delay time n' is a random number, and T_{RFW} is a radio frequency waiting time, sending a response to the initiator device by emitting from the target device a second electromagnetic wave to avoid starting the emission of electromagnetic waves by a plurality of target devices at the same time; and

when the passive communication mode is initiated and where there are a plurality of target devices which receive the command:

sending a response from the target device to the initiator device at a timing determined by a random number, the response including an identification (ID) to identify the respective target device.

Claim 10 (New): A communication apparatus for near-field wireless communications at a specified carrier frequency, the communication apparatus being configured to operate in active and passive communication modes and comprising:

a transmitter configured to generate a radio frequency field by generating carrier electromagnetic waves;

a modulator configured to transmit data by modulating the carrier electromagnetic waves in accordance with the data;

a detector configured to detect a presence of a radio frequency field; and

a controller arranged to configure the transmitter, modulator and detector such that:

(a) when the communication apparatus initiates an active or passive communication mode with another communication apparatus

the detector is configured to detect a presence of a radio frequency field within a first time period defined by $T_{IDT} + n \times T_{RFW}$, where T_{IDT} is an initial delay time, n is a random number, and T_{RFW} a radio frequency waiting time, the transmitter is configured to generate a radio frequency when a radio frequency field is not detected by the detector within the first time period, and the modulator is configured to transmit a request to start communication with the another communication apparatus via the radio frequency field at one of a predetermined transfer rates, and

(b) when the communication apparatus responds to a request for initiation of an active communication mode by another communication apparatus

the detector is configured to detect a presence of a radio frequency field within a second time period defined by $T_{ADT} + n' \times T_{RFW}$, where T_{ADT} is an active delay time, n' is a random number, and $T_{IDT} > T_{ADT}$, the transmitter is configured to generate a radio frequency field when a radio frequency field is not detected by the detect in the second time period, and the modulator is configured to modulate the carrier electromagnetic device waves with a data

signal to be transmitted to said another communication apparatus and to transmit a response to the request for initiation from the another communication apparatus via the radio frequency-field; and

(c) when the communication apparatus receives a request for initiation of a passive communication mode from another communication apparatus

the transmitter is configured to send a response to the request transmitted from the said another communication apparatus, the response including an identification (ID) determined by a random number generated in the communication apparatus to identify the communication apparatus.